

WHAT IS CLAIMED IS:

1. An X-ray diagnosis apparatus for obtaining an X-ray image, comprising:

an X-ray radiator configured to radiate an X-ray
5 to a specimen;

a detector configured to detect an X-ray data resulting from the X-ray;

a first mechanism coupled to the detector and configured to shift the detector along a detecting plane
10 of the detector;

a second mechanism coupled to the X-ray radiator and configured to change a radiation direction of the X-ray against the detector;

a controller configured to control the second
15 mechanism in accordance with the shift of the detector;
and

an image processor coupled to the detector and configured to prepare a fluoroscopic image data as the X-ray image based on the detected X-ray data and correct
20 a deformation of the fluoroscopic image data.

2. The apparatus according to claim 1, wherein the second mechanism rotates the X-ray radiator so as to change the radiation direction.

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3. The apparatus according to claim 1, wherein

the second mechanism includes a collimator locatable relative to the X-ray radiator and configured to collimate the X-ray; and wherein the controller controls a position of the collimator.

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4. The apparatus according to claim 3, wherein the controller further controls an aperture of the collimator.

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5. The apparatus according to claim 1, further comprising a third mechanism coupled to the X-ray radiator and configured to shift the X-ray radiator to a predetermined position.

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6. The apparatus according to claim 1, further comprising an arm configured to support the detector through a detector supporter and to support the X-ray radiator; and wherein the first mechanism shifts the detector relative to the detector supporter.

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7. The apparatus according to claim 1, further comprising an arm configured to support the detector through a detector supporter and to support the X-ray radiator; and wherein the first mechanism shifts the detector supporter coupled to the detector relative to the arm.

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8. The apparatus according to claim 1, further comprising a designation device configured to designate the shift of the detector; an arm configured to support the detector through a detector supporter and to support the X-ray radiator; and wherein, when the designation device is operated to designate the detector to shift in a predetermined direction, the first mechanism shifts the detector relative to the detector supporter in the predetermined direction and further shifts the detector supporter relative to the arm to help shift the detector in the predetermined direction.

9. The apparatus according to claim 1, further comprising a memory coupled to the image processor and configured to store a past image data; wherein the image processor is further configured to prepare, based on the past image data, a reference image data of a part of the specimen similar to what is viewed in the fluoroscopic image data in accordance with the shift of the detector.

10. The apparatus according to claim 9, wherein the reference image data is centered about a position corresponding to a center of the fluoroscopic image data in accordance with the shift of the detector.

11. The apparatus according to claim 9, further comprising a display configured to display the fluoroscopic image data and the reference image data.

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12. The apparatus according to claim 1, further comprising a designation device configured to designate that the detector returns to an initial position.

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13. The apparatus according to claim 1, wherein the first mechanism shifts the detector in at least one of a first direction and a second direction perpendicular to the first direction.

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14. The apparatus according to claim 1, further comprising a display coupled to the image processor and configured to display a processed image; wherein the image processor is further configured to prepare a contrast-enhanced reference image data prior to

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preparing the fluoroscopic image data; wherein the image processor is still further configured to perform a subtraction processing between the fluoroscopic image data and at least a part of the contrast-enhanced reference image data, the part being determined in

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accordance with the shift of the detector; and wherein the display provides a subtraction processed image as

the processed image.

15. An X-ray diagnosis apparatus for obtaining an X-ray image, comprising:

5 an X-ray radiator configured to radiate an X-ray to a specimen;

 a detector configured to detect an X-ray data resulting from the X-ray;

 a first mechanism coupled to the detector and
10 configured to shift the detector along a detecting plane of the detector;

 a second mechanism coupled to the X-ray radiator and configured to cause the X-ray to be exposed throughout an effective detecting area of the detector;

15 a controller configured to control the second mechanism in accordance with the shift of the detector; and

 an image processor coupled to the detector, the image processor having a memory configured to store a
20 past image data and being configured to prepare a fluoroscopic image data based on the detected X-ray data and a reference image data, based on the past image data, of a part of the specimen similar to what is viewed in the fluoroscopic image data in accordance with the shift
25 of the detector.

16. The apparatus according to claim 15, wherein the reference image data is centered about a position corresponding to a center of the fluoroscopic image data in accordance with the shift of the detector.

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17. The apparatus according to claim 15, wherein the second mechanism rotates the X-ray radiator so as to cause the X-ray to be exposed throughout the effective detecting area.

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18. The apparatus according to claim 15, wherein the second mechanism includes a collimator locatable relative to the X-ray radiator and configured to collimate the X-ray; and wherein the controller controls
15 a position of the collimator.

19. The apparatus according to claim 18, wherein the controller further controls an aperture of the collimator.

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20. The apparatus according to claim 15, wherein the second mechanism shifts the X-ray radiator to a predetermined position.

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21. The apparatus according to claim 15, further comprising an arm configured to support the detector

through a detector supporter and to support the X-ray radiator; and wherein the first mechanism shifts the detector relative to the detector supporter.

5 22. The apparatus according to claim 15, further comprising an arm configured to support the detector through a detector supporter and to support the X-ray radiator; and wherein the first mechanism shifts the detector supporter coupled to the detector relative to
10 the primary supporter.

 23. The apparatus according to claim 15, further comprising a designation device configured to designate the shift of the detector; an arm configured to support
15 the detector through a detector supporter and to support the X-ray radiator; and wherein, when the designation device is operated to designate the detector to shift in a predetermined direction, the first mechanism shifts the detector relative to the detector supporter and
20 further shifts the detector supporter relative to the arm to help shift the detector in the predetermined direction.

 24. The apparatus according to claim 15, wherein
25 the image processor is further configured to correct a deformation of the fluoroscopic image data in

accordance with the shift of the detector.

25. The apparatus according to claim 15, further comprising a display configured to display the
5 fluoroscopic image data and the reference image data.

26. The apparatus according to claim 15, further comprising a designation device configured to designate
that the detector returns to an initial position.

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27. The apparatus according to claim 15, wherein the first mechanism shifts the detector in at least one
of a first direction and a second direction perpendicular
to the first direction.

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28. An X-ray diagnosis apparatus for obtaining an X-ray image, comprising:

an X-ray radiator configured to radiate an X-ray
to a specimen;

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a detector configured to detect an X-ray data
resulting from the X-ray;

a set of gears coupled to the detector and
configured to shift the detector along a detecting plane
of the detector;

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an X-ray radiator supporter coupled to the X-ray
radiator and configured to move the X-ray radiator so

as to cause the X-ray to be exposed throughout an effective detecting area of the detector;

a controller configured to control the X-ray radiator supporter in accordance with the shift of the
5 detector;

an image processor coupled to the detector, the image processor having a memory configured to store one or more past fluoroscopic image data and being configured to prepare a current fluoroscopic image data based on
10 the detected X-ray data and a contrast-enhanced reference image data based on at least one of the past fluoroscopic image data, and further to perform a subtraction processing between the current fluoroscopic image data and at least a part of the
15 contrast-enhanced reference image data, the part being determined in accordance with the shift of the detector;
and

a display coupled to the image processor and configured to display a subtraction processed image.